

N91192.AR.001060
NIROP FRIDLEY
5090.3a

LETTER REGARDING THE NOTIFICATION OF PROPOSED DISTURBANCE OF PLATING
ROOM CONCRETE PIT FLOOR AND UNDERLYING SOIL NIROP FRIDLEY MN
12/05/2013
RESOLUTION CONSULTANTS

December 5, 2013

Ms. Sheila Desai
U.S. Environmental Protection Agency Region 5
77 West Jackson Blvd.
Chicago, Illinois 60604

Ms. Shanna Schmitt
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul MN 55155

RE: Notification of Proposed Disturbance of Plating Room Concrete Pit Floor and Underlying Soil, Naval Industrial Reserve Ordnance Plant (NIROP), Fridley, Minnesota Revision 01

Dear Ms. Desai and Ms. Schmitt,

Resolution Consultants, on behalf of the Navy, is submitting this letter regarding a proposed disturbance of the NIROP East Plating Room concrete pit floor and underlying soil. The Navy has completed the first stage of source area investigation, which included completion of vertical profile borings and membrane interface probe borings at the NIROP site. After reviewing preliminary data from the first stage of the investigation, additional contingency soil borings were proposed. As discussed during the conference call on November 22, 2013, one contingency boring is proposed inside the East Plating Room. Per the August 2003 Record of Decision, this letter serves as notification that the concrete "pit floor" and soil beneath the East Plating Room will be disturbed during completion of the soil boring, as outlined below.

The upper concrete floor at the East Plating Room boring location, as shown on Attachment A, will be opened with a 12-inch diameter concrete corer. A soil boring will be advanced with a hollow-stem auger through the sand fill until the augers reach the lower concrete pit floor, approximately six feet below grade. A Geoprobe concrete drill bit will be lowered through the augers and used to drill an approximately three inch hole through the lower concrete pit floor. After penetrating through the lower concrete floor, soil and/or groundwater samples will be collected with a Geoprobe Macrocore sampler and/or screen point sampler to approximately 50 feet below grade.

Immediately after soil and groundwater sampling is complete, the boring will be sealed with grout from the bottom up as outlined in the Sampling and Analysis Plan, Source Area Investigation, Naval Industrial Reserve Ordnance Plant (NIROP), Fridley, Minnesota, by Resolution Consultants, dated July 2013. The grouting will be completed in accordance with Minnesota Rules 4725.3050. Specifically, Quik-Grout[®] sodium-bentonite grout will be used to seal the borehole (see Attachment B for grout information sheet and mixing instructions). The grout will be allowed to hydrate and settle in place for at least 24-hours and will be "topped off" as needed if grout settling occurs. The duration of the drilling and grouting is expected to be one day, with concrete patching work finished on the subsequent day.

The upper concrete floor in the East Plating Room will be patched with Commercial Grade Quikrete 5000 concrete (see Attachment C for concrete information sheet) to match the thickness and finish of



the existing concrete. Up to four dowels will be drilled in the existing concrete and epoxied into place. Concrete bonding adhesive will be applied to the existing concrete prior to pouring the new concrete. The concrete patch will be covered with plastic sheeting and allowed to cure per the manufacture's recommendations.

One additional attempt will be made to complete the East Plating Room boring if difficult drilling conditions are encountered (rebar in concrete, cobbles, etc). The second attempt will be off-set from the original boring by approximately 5 feet, in a direction to be determined by the field team leader to avoid surface and subsurface encumbrances.

The boring is scheduled to be completed in December 2013, assuming this schedule will accommodate BAE operations in the East Plating Room. The Navy will notify you of any scheduling or operational changes. We respectfully request that you respond with your approval of this disturbance of the East Plating Room concrete "pit floor" and soil prior to December 20, 2013. Please indicate approval on the following page where indicated.

The above disturbance of the NIROP Fridley Plating Room concrete pit floor and soil as described above is hereby approved.

For United States Environmental Protection Agency, Region 5

Sheila Desai RPM 12/5/13
(Name) Title Date

For Minnesota Pollution Control Agency

Shanna Schmitt Hydrogeologist II 12/09/2013
(Name) Title Date

Please contact me at (612) 376-2425 or Harvey Pokorny at (847) 688-2600 x611 with any questions regarding this submittal.

Sincerely,



Christina M. Boehm Carlson, PG
Resolution Consultants Project Manager
Chris.Boehm@aecom.com

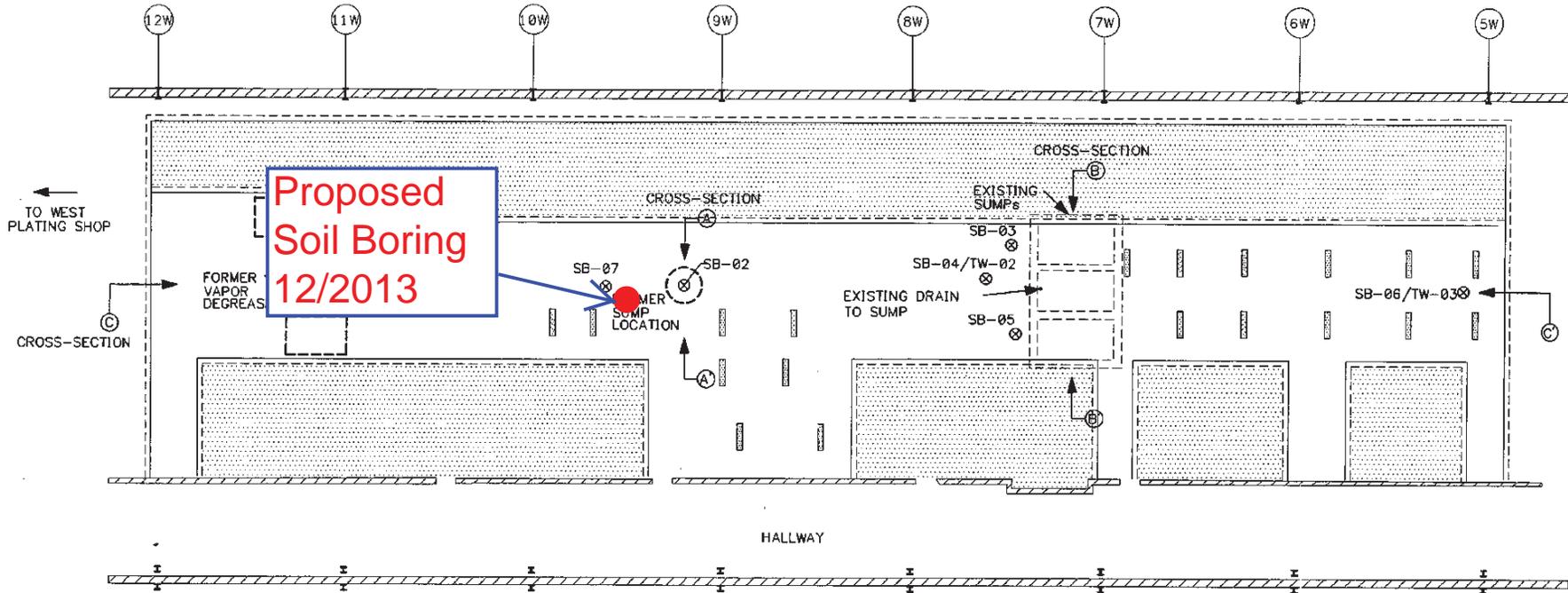
Cc: Harvey Pokorny, NAVFAC MW
Howard Hickey, NAVFAC MW

Attachments



Attachment A

DRAFT



LEGEND

- BUILDING COLUMN
CONCRETE PIER
- FORMER SUMP
LOCATION (PRE-1973)
- FORMER VAPOR
DEGREASER LOCATION
- SOIL BORING/
TEMPORARY WELL LOCATION
- CROSS-SECTION LOCATION

SURVEY DATA FOR SOIL BORINGS / WELLS

WELL/BORING	STATE PLANE COORDINATES	ELEVATION
SB-01/TW-01	1078642.7759, 2811514.2783	829.5 GROUND
SB-02	1078643.6444, 2811549.2176	829.3 GROUND
SB-03	1078644.6229, 2811608.6421	829.3 GROUND
SB-04/TW-02	1078640.1975, 2811605.3233	829.0 GROUND
SB-05	1078632.9496, 2811609.2425	829.3 GROUND
SB-06/TW-03	1078643.1822, 2811666.3711	829.6 GROUND
SB-07	1078643.4735, 2811538.8190	829.4 GROUND

SOIL BORING AND TEMPORARY WELL LOCATIONS
EAST PLATING SHOP
SOIL AND GROUNDWATER INVESTIGATION
NIROP, FRIDLEY



FIGURE 2-1





QUIK-GROUT®

One-Sack Borehole Grouting and Plugging Material

Description QUIK-GROUT® one-sack grouting and plugging material is a sodium bentonite-based grout designed for grouting water wells, monitoring wells, and for plugging boreholes. QUIK-GROUT grouting and plugging material does not contain any polymers.

Applications/Functions

- Can seal or grout plastic and steel casings
- Can seal downhole instrumentation in test and observation holes
- Can plug abandoned boreholes and earthen cavities
- Not recommended for use as a cement additive

Advantages

- Easy-to-use one sack grout
- Dust-free mixing
- Can be mixed and pumped using conventional rig equipment
- Rehydratable
- No heat of hydration
- Can develop a 20% active solids slurry weighing 9.4 lb/gal (1.13 g/cm³) with hydrostatic gradient of 0.489 psi/ft (11.1 kPa/meter)
- Can create a low permeability seal to prevent entry of contaminants from the surface
- Can develop a permanent, flexible seal to prevent commingling between aquifers
- NSF/ANSI Standard 60 certified

Typical Properties	• Appearance	Beige to tan granules
	• Specific gravity	2.6
	• pH (8% slurry)	8.2
	• Electrical Resistivity	0.98 ohm-meter
	• Yield Volume	26.3 gallons per 50-lb sack 99.5 liters per 23-kg sack
	• Permeability (in fresh water)	2.5×10^{-8} cm/sec

Recommended Treatment For maximum results, pre-treat make-up water with Soda Ash to less than or equal to 100 mg/l total hardness and to a pH range of 8.5 – 9.5.

The recommended mixing rate is one 50-lb (23-kg) sack of QUIK-GROUT grouting and plugging material per 24 gallons (91 liters) of fresh water to create a 20% active solids by weight grout with a density of 9.4 lb/gal or 1.13 g/cm³.

**Recommended Mixing
Procedure**

Do not over mix and do not use a centrifugal pump.

1. Using a mixing device, blend one sack of QUIK-GROUT® grouting and plugging material into 24 gallons (91 liters) of fresh water. Rate of addition should be about 20 to 30 seconds per 50-lb (23-kg) bag.

Note: The resulting slurry should have an oatmeal consistency containing unyielded or partially yielded bentonite.

2. Pump slurry through tremie pipe into hole without delay. Grout slurry should be pumped through tremie pipe from bottom of interval to surface to ensure effective displacement. Maintain submergence of tremie pipe a minimum of 10-feet within grout column for uniform displacement.

Additional Information

- The grouting material and method selected will depend upon the specific subsurface environment including all prevailing geological and hydrological factors and any existing regulatory requirements. The grouting process may not be complete until the grout is static at the desired level.
- The use of bentonite may not be appropriate in environments where the formation water chemistry has a total hardness greater than 500 parts per million and/or a chloride content of greater than 1500 parts per million.
- If questions arise regarding subsurface environments it is always best to consult your local Baroid IDP representative to determine if the Baroid product of choice is appropriate for the given conditions.

Packaging

QUIK-GROUT grouting and plugging material is packaged in 50-lb (23-kg) multiwall paper bags, containing 0.7 ft³ (0.02 m³).

Availability

QUIK-GROUT grouting and plugging material can be purchased through any Baroid Industrial Drilling Products Retailer. To locate the retailer nearest you contact the Customer Service Department in Houston or your area IDP Sales Representative.

Baroid Industrial Drilling Products

Product Service Line, Halliburton

3000 N. Sam Houston Pkwy E.

Houston, TX 77032

Customer Service (800) 735-6075 Toll Free (281) 871-4612

Technical Service (877) 379-7412 Toll Free (281) 871-4613

QUIKRETE® 5000 Concrete Mix

PRODUCT NO. 1007

PRODUCT DESCRIPTION

QUIKRETE® 5000 Concrete Mix is a commercial grade blend of stone or gravel, sand and cement specially designed for higher early strength.

PRODUCT USE

QUIKRETE® 5000 Concrete Mix is suitable for any concrete use requiring high early strength and rapid strength gains. QUIKRETE® 5000 sets quickly, making it ideal for cold weather applications. It has a walk-on time of 10 - 12 hours. QUIKRETE® 5000 can be used for any application requiring concrete in a minimum thickness of 2" (51 mm), such as slabs, footings, steps, columns, walls and patios.

SIZES

- QUIKRETE® 5000 Concrete Mix –
 - 80 lb (36.3 kg) bags
 - 60 lb (27.2 kg) bags

YIELD

- Each 80 lb (36.3 kg) bag yields approximately 0.60 cu ft (17 L). A 60 lb (27.2 kg) bag yields approximately 0.45 cu ft (12.7 L).

TECHNICAL DATA

APPLICABLE STANDARDS

ASTM International - ASTM C387 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete

PHYSICAL/CHEMICAL PROPERTIES

QUIKRETE® 5000 High Early Strength Concrete Mix exceeds the compressive strength requirements of ASTM C387, as shown in Table 1.

TABLE 1 TYPICAL PHYSICAL PROPERTIES¹

Compressive strength, ASTM C39

1 day	1500 psi (10.3 MPa)
3 day	2500 psi (17.2 MPa)
7 days	3500 psi (24.1 MPa)
28 days	5000 psi (34.5 MPa)

Slump range 2" - 3" (51 - 76 mm)

¹ Tested under standard laboratory conditions in accordance with ASTM C387.

DIVISION 3

Structural Concrete
03 31 00



INSTALLATION

SITE PREPARATION

Stake out the area and remove sod or soil to the desired depth. Nail and stake forms securely in place. Tamp the sub-base until firm.

MIXING

MACHINE MIXING

- QUIKRETE® 5000 can be mixed in a barrel-type concrete mixer or a mortar mixer. Choose the mixer size most appropriate for the size of the job to be done. Allow at least 1 cu ft (28 L) of mixer capacity for each 80 lb (36.3 kg) bag of QUIKRETE® 5000 to be mixed at a time
- For each 80 lb (36.3 kg) bag of QUIKRETE® 5000 to be mixed, add approximately 6 pt (2.8 L) of fresh water to the mixer. Turn on the mixer and begin adding the bags of concrete to the mixer
- If the material becomes too difficult to mix, add additional water until a workable mix is obtained
- If a slump cone is available, adjust water to achieve a 2" - 3" (51 - 76 mm) slump

Note - Final water content should be approximately 6 - 10 pt (2.8 - 4.7 L) per 80 lb (36.3 kg) bag and 4.5 - 7 pt (2.1 - 3.3 L) per 60 lb (27.2 kg) bag.

HAND MIXING

- Empty bags into a suitable mixing container
- Add approximately 6 pt (2.8 L) of clean water for each 80 lb (36.3 kg) bag
- Work the mix with a shovel, rake or hoe and add water as needed until a stiff, moldable consistency is achieved
- Do not exceed a total volume of 10 pt (4.7 L) per 80 lb (36.3 kg) bag or 7 pt (3.3 L) per 60 lb (27.2 kg) bag
- Be sure all material is wet; do not leave unabsorbed puddles of water

TEMPERATURE OF WATER

Set times will fluctuate in extremely hot or cold weather. Use cold water or water mixed with ice cubes in severely hot weather; use hot water when mixing in severely cold weather.

APPLICATION

- Dampen the sub-grade before concrete is placed. Do not leave standing puddles
- Shovel or place the concrete into the form. Fill to the full depth of the form
- After the concrete has been compacted and spread to completely fill the forms, strike off and float immediately
- To strike off, use a straight board (screed), moving the edge back and forth with a saw-like motion to smooth the surface. Then use a darby or bull float to float the surface. This helps level any ridges and fill voids left by the straight edge
- Cut the concrete away from the forms by running an edging tool or trowel along the forms to compact the slab edges
- Cut 1" (25.4 mm) control joints into the slab every 6' - 8' (1.8 - 2.4 m) using a grooving tool
- Allow the concrete to stiffen slightly, waiting until all water has evaporated from the surface before troweling or applying a broom finish

Note - For best results, do not overwork the material.

CURING

GENERAL

Curing is one of the most important steps in concrete construction. Proper curing increases the strength and durability of concrete, and a poor curing job can ruin an otherwise well-done project. Proper water content and temperature are essential for good curing. In near freezing temperatures, the hydration process slows considerably. When weather is too hot, dry or windy, water is lost by evaporation from the concrete and hydration stops resulting in finishing difficulties and cracks. The ideal circumstances for curing are ample moisture and moderate temperature and wind conditions. Curing should be started as soon as possible and should continue for a period of 5 days in warm weather, 70°F (21°C) or higher, or 7 days in colder weather, 50 - 70°F (10 - 21°C).

SPECIFIC CURING METHODS

QUIKRETE® Acrylic Cure & Seal – Satin Finish (#8730) provides the easiest and most convenient method of curing concrete.

- Apply by sprayer or roller after the final finishing operation when the surface is hard. The surface may be damp, but not wet, when applying curing compound. Complete coverage is essential.
- Other methods of providing proper curing include covering the surface with wet burlap, keeping the surface wet with a lawn sprinkler and sealing the concrete surface with plastic sheeting

- If burlap is used, it should be free of chemicals that could weaken or discolor the concrete. New burlap should be washed before use. Place it when the concrete is hard enough to withstand surface damage and sprinkle it periodically to keep the concrete surface continuously moist
- Water curing with lawn sprinklers or hoses must be continuous to prevent interruption of the curing process
- Curing with plastic sheets is convenient. They must be laid flat, thoroughly sealed at joints and anchored carefully along edges

PRECAUTIONS

- When used in structural elements, comply with the steel reinforcing and additional requirements of applicable building codes.
- Curing compounds should not be applied if rain or temperatures below 50°F (10°C) are expected within 24 hours
- Curing with plastic or burlap can cause patchy discoloration in colored concrete. For colored concrete, wet curing or chemical curing compounds are recommended
- Use of Acrylic Cure & Seal – Satin Finish (#8730) or other curing compounds is not recommended during late fall in northern climates on surfaces where de-icers will be used to melt ice and snow. Using curing compounds at that time may prevent proper air curing of the concrete, which is necessary to enhance its resistance to damage caused by deicers
- Protect concrete from freezing during the first 48 hours. Plastic sheeting and insulation blankets should be used if temperatures are expected to fall below 32°F (0°)

WARRANTY

The QUIKRETE® Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE® Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Rd., NE, Suite 1300, Atlanta, GA 30305
(404) 634-9100 • Fax: (404) 842-1425

* Refer to www.quikrete.com for the most current technical data, MSDS, and guide specifications

